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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/904,933

07/13/2001

Robert J. McCarty JR.

CS-6

2355

7590

03/18/2005

Daniel R. Brown

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EXAMINER

TSE, YOUNG TOI

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/904,933

Applicant(s)

MCCARTY, ROBERT J.

Examiner

YOUNG T. TSE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                             |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>071301</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because a second mixer of the modulator 69 shown in Figure 3 does not include a second input, which appears to be generated from the DAC 71. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: in paragraph [23], line 1, "FFT 73" should be "IFFT 73". Appropriate correction is required.

### ***Claim Objections***

3. Claims 1-10 are objected to because of the following informalities:

In claim 1, lines 3 and 5 (both occurrences), "carrier state" should be "sub-carrier state" and lines 3-4, "a first symbol interval" should be "said first symbol interval" for clarity. Also see claims 2, 5 and 6.

In claim 3, lines 5 and 6, "a symbol interval" and "the states of a sub-carrier" should be "a first symbol interval" and "the state of said first adjacent sub-carrier", respectively.

In claim 4, line 3, "a plurality of sub-carriers" should be "said plurality of sub-carriers"; line 9, "sub-carrier at a symbol interval" should be "sub-carriers at a first symbol interval"; and line 11, "a sub-carrier" should be "said first adjacent sub-carrier".

In claim 7, line 4, "symbol interval" and "the a difference" should be "first symbol interval" and "the difference"; line 6, "a sub-carrier" should be "said first adjacent sub-carrier"; and line 8, "between adjacent symbol intervals" appears to read "in said sub-carrier states".

In claim 8, line 4, "sub-carrier" should be "sub-carriers" (see claim 7, line 3); lines 5 and 7, "symbol interval" and "a sub-carrier" should be "first symbol interval" and "said

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first adjacent sub-carrier"; and line 8, "symbol intervals" and "is said" should be "symbol interval" and "in said".

In claim 9, lines 6, 10 and 11, "a first", "a set" and "a last" should be "said first", "said set" and "said last".

In claim 10, lines 7 and 12, "a first" and "a last" should be "said first" and "said last", respectively.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The configuration of claims 1, 3, 5, 7, and 9 does not correspond to the disclosure of the drawings. For example, claims 1, 3, 5, 7 and 9 are directly related to a method and transmitter for differential encoding symbols or packets. However, the claimed subject matter recited in the method and the transmitter is not discussed in the specification or disclosed in Figures 8-10 in order to enable a person skill in the art to

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understand the invention since Figures 8-10 are the diagrams of the differential decoding sequences. In other words, no differential encoding sequence diagrams are shown as now recited in the claims

Further, the specification fails to adequately discuss the operation of the differential encoder 75 in the transmitter and the differential decoder 74 in the receiver of Figure 3 in order to enable a person skill in the art to understand the performance of the differential encoding and decoding sequence of a plurality of sub-carriers and symbols.

Furthermore, in 10, the step of comparing a first sub-carrier state and a last sub-carrier state is not shown in the drawing.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4, 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, lines 10 and 12, what is the difference between "said sub-carriers' states" and "said sub-carrier states"? Also see claim 8.

In claim 7, line 5, is the phrase "sub-carrier states" different than "the at least first and second adjacent sub-carriers"?

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Huber et al..

Huber et al. (EP 0 991 237 A1) discloses a communication system in Figure 1 comprising a differential encoder in a transmitter circuit and a differential decoder in a receiver circuit to perform a method of transmitting blocks of data symbols via a transmission carrier divided into a plurality of parallel sub-carriers spaced in frequency direction.

With respect to claims 9 and 10, the data symbols of the sub-carriers and the symbol intervals performed by the differential encoder and decoder are shown in Figures 2 and 3. For example, when the data symbols are performed by the differential encoder in a first symbol interval, the modulation of the state of each sub-carrier to sequentially encode a set of symbols across frequency as the difference between adjacent sub-carrier states from a first sub-carrier state to a last sub-carrier state, for each subsequent symbol interval, the modulation of a first sub-carrier state to encode a symbol across time as the difference a sub-carrier state with respect to the last sub-carrier state in the previous symbol interval, and for each of the subsequent symbol intervals, the modulation of the state of each sub-carrier to sequentially encode a set of

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symbols across frequency as the difference between adjacent sub-carrier states from said first sub-carrier state to a last sub-carrier state. Wherein the operation of the differential decoder as recited in claim 10 is performed in the inverse manner of the differential encoder.

### ***Allowable Subject Matter***

10. Claims 1-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, first paragraph and 2nd paragraph, and the objections set forth in this Office action.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to show or suggest a method and apparatus of differential encoding or decoding a first symbol as the difference between a first carrier state at a first symbol interval and an adjacent carrier state at a first symbol interval and encoding or decoding a second symbol as the difference between the first carrier state at the first symbol interval and the first carrier state at an adjacent symbol interval.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

References Ishikawa et al, Seki et al., Dejonghe, Weerackody, and Eberlein et al. are made of record as describing a related differential encoder and decoder for encoding and decoding data symbols.

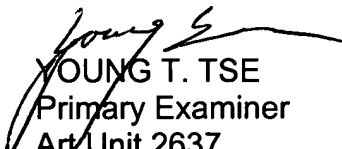


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday and Wednesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
YOUNG T. TSE  
Primary Examiner  
Art Unit 2637